TRANSIENT HEMIPLEGIA ASSOCIATED WITH CEREBRAL ANGIOGRAPHY (DIODRAST)*

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Since the introduction of cerebral angiography by Egas Moniz, repeated efforts have been made toward the simplification of the technique as well as the reduction in hazard for the patient undergoing the diagnostic procedure. The wider adoption of the percutaneous injection method of the carotid system and the use of serigraphic devices have overcome some of the difficulties formerly encountered. However, the development of an inert substance, ideal for radiographic visualization, is still forthcoming. Thorotrust is considered by some investigators superior to diodrast because of its relatively greater radiopacity and less frequent immediate systemic reactions. Nevertheless, because of the potentially dangerous radioactivity of thorotrust, other workers have employed diodrast as the contrast medium of choice.

Recently, the authors have observed the occurrence of transient hemiplegia in 2 patients as an immediate complication of diodrast cerebral angiography. A review of the literature failed to disclose reports of such transitory hemiplegic phenomena with the use of diodrast in concentration of 35 per cent. These cases are presented, therefore, together with a brief résumé of the pharmacological action of diodrast and the clinical experience of others with its use.

Case 1. M. C., a 49-year-old white male, was admitted to St. Vincent's Hospital on 25 Oct. 1948, 10 hours following the onset of severe supraorbital headache, vertigo, nausea and projectile vomiting. Neurological findings were normal except for moderate stiffness of the neck. The patient was right-handed. Blood pressure was 140/100 and temperature, pulse and respiration were normal. Lumbar puncture disclosed grossly bloody fluid with an initial pressure of 290 mm. By the 12th day the CSF was no longer bloody and the initial pressure was 156 mm. Gradual symptomatic improvement occurred during the next 2 weeks. Laboratory studies including complete blood count, bleeding and coagulation time, blood and spinal fluid serology, visual fields and skull x-rays were within normal limits. An EEG (Fig. 1) on the 17th day was borderline. The patient denied any personal or familial allergic reactions to food, pollen or bacteria. An ocular test for diodrast sensitivity was negative.

On the 32nd day right percutaneous cerebral angiography was performed under local anesthesia, using a No. 18 needle. Premedication consisted of nembutal 0.10

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HEMIPLEGIA ASSOCIATED WITH ANGIOGRAPHY

The right common carotid artery was entered without difficulty and a right lateral projection arteriogram and venogram was obtained with 20 cc. of 35 per cent diodrast. There was incomplete detail in the course of the right anterior cerebral artery and a repeat injection was performed using an equal amount of diodrast. Thirty seconds following the injection the patient lost consciousness and remained unresponsive for approximately 2 minutes. No convulsive movements were observed. A complete left flaccid hemiplegia with weakness of the left lower facial musculature was evident within 3 minutes. The deep reflexes on the left side were increased slightly, the left plantar response was extensor, and there was left ankle clonus. The blood pressure was recorded at 160/100 and pulse rate 76. The patient was given 300 mg. of tetraethylammonium chloride intravenously approximately 10 minutes later with immediate fall in blood pressure to 106/90 and rise in pulse rate to 96. The patient remained lethargic and moderately dysphasic, but return in motor function of the extremities of the left side occurred within 1½ hours after onset of the episode. At that time, the deep reflexes were equal and active bilaterally and the left plantar response was flexor. Another intravenous injection of 200 mg. of tetraethylammonium chloride was given. Approximately 2½ hours after onset of the reaction, the patient was alert, orientated, and there was no evidence of speech disturbance.

On the 37th day left cerebral angiography was performed using the same technique. The procedure was tolerated well and there was no discomfort. A small aneurysmal dilation of the left anterior cerebral artery just distal to the anterior communicating artery was disclosed. The remainder of the patient's course was uneventful and he was discharged on the 44th hospital day. He remained asympto-